ISO/IEC 11179 : Specification and Standardization of Data Elements

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- Purpose of ISO/IEC 11179
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ISO - International Organisation for Standardisation

IEC - International Electrotechnical Commission

Purpose of ISO/IEC 1179

- Family of standards for informational and organisational structure of metadata registries
- International standard for formally expressing the semantics of data elements in a consistent manner
- Consistency allows for interoperability

ISO/IEC 11179 Overview

ISO/IEC 11179 consists of 6 parts:

- Part 1 -Framework
- Part 2 -Classification for Data Elements
- Part 3 -Basic Attributes of Data Elements
- Part 4 -Rules and Guidelines for the formulation of Data Definitions
- Part 5 -Naming and Identification principles for Data Elements
- Part 6 -Registration of Data Elements

Parts 4-6 are standards

Part 3 is under going revision

Parts 1-2 past final draft stage (Jan 2000)

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ISO/IEC 11179-1

Framework for the Specification and Standardization of Data Elements

- Introduces fundamental ideas
- Provides context for associating individual parts
- Consolidates definitions from all the parts

Fundamental Concepts ...

Data Element: a unit of data for which the definition, identification, representation and permissible values are specified by means of a set of attributes

Object class: a set of ideas, abstractions, or things in the real world that can be identified with explicit boundaries and meaning and whose properties and behaviour follow the same rules

Property: the human perception of a single characteristic of an object class in the real world. It has no particular associated means of representation by which the property can be communicated

Fundamental Concepts

Representation: the part of a data element having a value domain, datatype and other representational specifications

Data Element Concept: an idea that can be represented in the form of a data element, described independently of any particular representation

Value Domain: a set of restricted permissible values

ISO/IEC 11179-2

Classification for Data Elements

- Provides procedures and techniques for associating DE concepts and DEs with classification schemes
- Provides for the classification of DE components

ISO/IEC 11179-3

Basic Attributes of Data Elements

Name - Label assigned to the DE

Identifier - Unique id assigned to the DE

Version - Version of the DE

Registration Authority - An organisation authorised to register the DE

Language - Language in which the DE is specified

Definition - A statement that clearly represents the concept and essential nature of the DE

Obligation - Indicates whether the DE is required to always or sometimes be present (mandatory, conditional, optional)

Datatype - Indicates the type of data that can be represented in the value of the DE

Maximum Occurrence - Indicates any limit to repeatability of the DE

Comment - A remark concerning the application of the DE

ISO/IEC 11179-4

Rules and Guidelines for the formulation of Data Definitions

- Requirements for clear definitions of DEs
- Rules and guidelines for clear definitions

A DE definition must: be unique, be singular, state the concept (not its negative), be a descriptive phrase or statement, expand abbreviations, not contain embedded definitions

ISO/IEC 11179-5

Naming and Identification Principles for DEs

- Rules for registration identification of data
- Guidelines for structured naming conventions for DEs

Attributes to name and identify a DE:

name, context, registration authority identifier,

data identifier, version identifier

ISO/IEC 11179-6

Registration of Data Elements

- Structure and assignment of International Registration Data Identifier
- Organisational roles involved in registration
- Procedure for registering DEs

Examples

ISO/IEC 11179 compliant registries

Environmental Data Registry:

http://www.epa.gov/edr/

Australian National Health Information Knowledgebase:

http://www.aihw.gov.au/services/health/nhik.html

References

ISO/IEC 11179

http://www.iso.ch/

http://www.sdct.itl.nist.gov/~ftp/L8/11179/

Open Forum on Metadata Registries (Jan 2000)

http://www.sdct.itl.nist.gov/~ftp/l8/sc32wg2/2000/events/openforum/index.htm